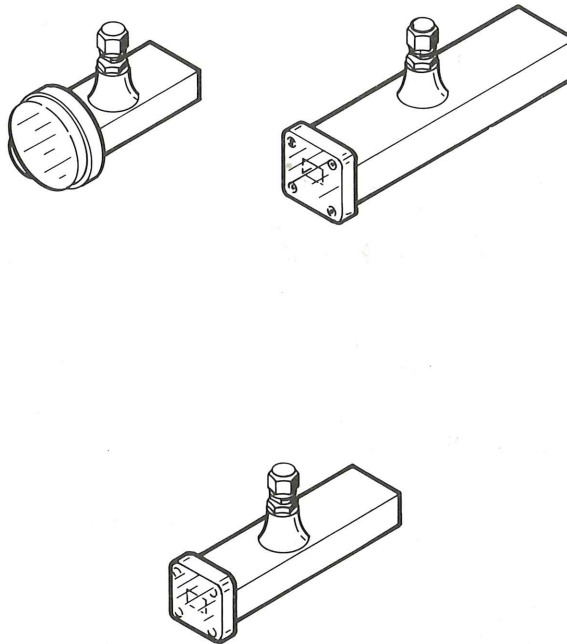


**HIGH PERFORMANCE WAVE GUIDE MIXERS  
FOR 492, 7L18**

Part No. 016-0631-01, 016-0632-01, 016-0634-01



NO. 062-4566-00

DATE JULY 1980

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**HIGH PERFORMANCE WAVEGUIDE MIXERS**

Frequency Range	Tektronix Part Number
18 - 26.5 GHz	016-0631-01
26.5 - 40 GHz	016-0632-01
40 - 60 GHz	016-0634-01

These High Performance Waveguide Mixers are used with certain TEKTRONIX spectrum analyzers, such as the 7L18 and 492, to make accurate frequency measurements above 18 GHz. The microwave mixers (18 - 26.5 GHz and 26.5 - 40 GHz) have field replaceable diodes but the millimeter wave mixer (40 - 60 GHz) is not user serviceable and must be returned to the factory for repair. Although relatively rugged and easy to use, these mixers require strict adherence to specific handling and operating instructions to maximize performance.

A description, and information on how to use these mixers can be found in the applicable spectrum analyzer manuals.

**Specifications**

Frequency Range	Sensitivity* (dBm)	Sensitivity** (dBm)	Frequency Response***	Amplitude Accuracy****
18 - 26.5 GHz	-100	-90	±3dB	±6dB
26.5 - 40 GHz	- 95	-85	±3dB	±6dB
40 - 60 GHz	- 95	-75	±3dB	±6dB

\*Equivalent average noise level at 1kHz bandwidth in the 492 system.

\*\*Equivalent average noise level at 3kHz bandwidth in the 7L18 system.

\*\*\*Maximum amplitude variation across each waveguide mixer band (with peaking control optimized) in response to a -30dBm cw input signal to the waveguide mixer.

\*\*\*\*Maximum reference level error with respect to the internal calibrator. Amplitude accuracy can be improved 3dB by measuring amplitude response in each band with respect to a known external waveguide signal source level.

Maximum cw RF input level: +10 dBm (10mW)

Maximum pulsed RF input level: 1W peak with 0.001 maximum duty factor and 1µs maximum pulse width.

1 dB compression point (saturation): -20 dBm (typical)

Conversion loss: 30 dB typical (when used in the proper spectrum analyzer frequency band)

L.O. requirement: +7 dBm min., +15 dBm max., +10 dBm typical

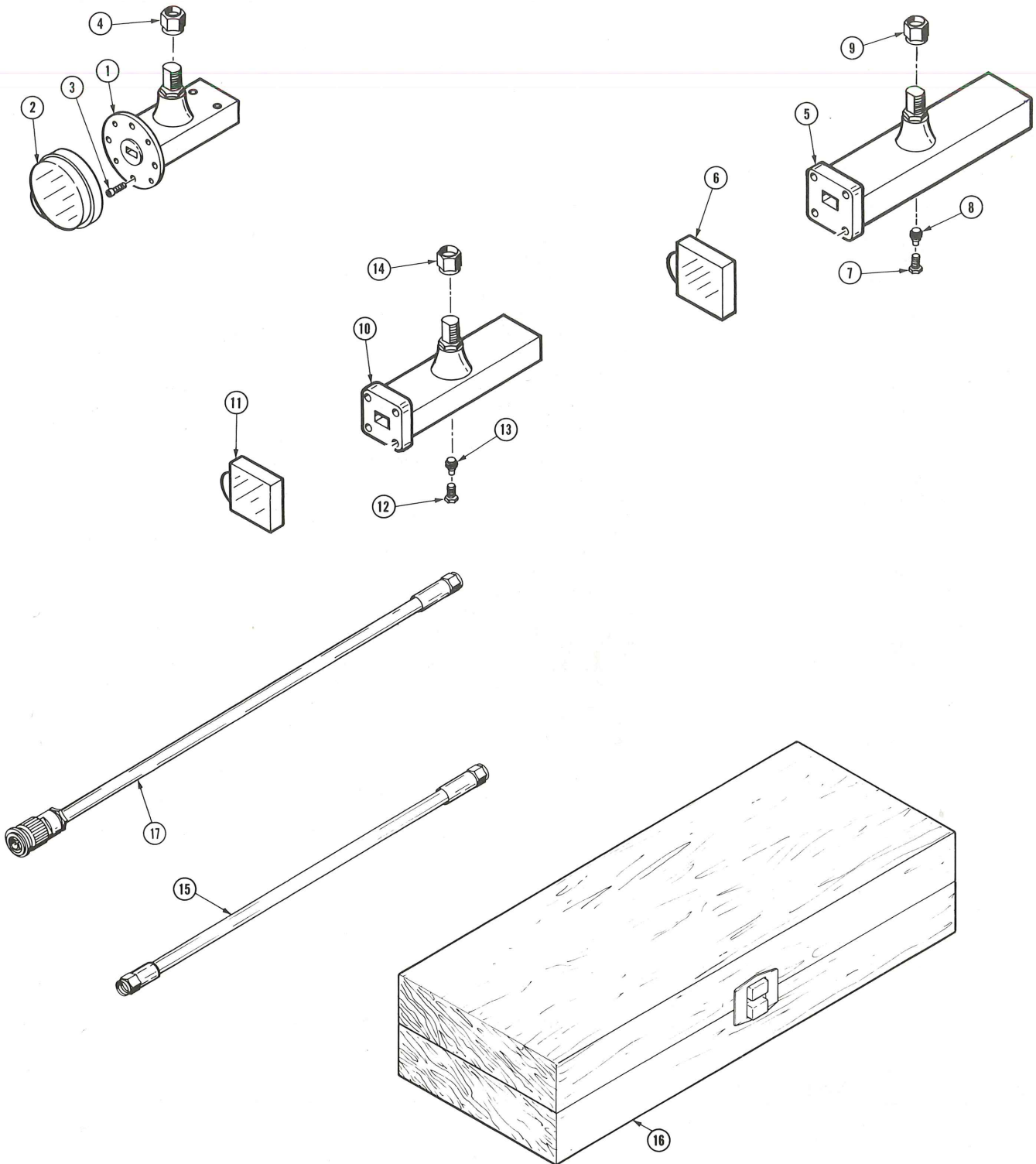
Bias requirement: -2.0 V to +0.5V with respect to the mixer body through a current limiting resistor, to provide 0 - 20 mA of bias current

Installation — Bolt the mixer to the RF signal source and use a flexible cable to connect the mixer to the spectrum analyzer. The 492 Spectrum Analyzer also requires the use of an external diplexer in the waveguide bands.

Since the cable can store enough energy to destroy the mixer diode, connect the cable to the spectrum analyzer before connecting to the mixer. When installing the mixer, ensure that the flange surface is clean and free of scratches. Install and tighten all flange screws.

Operation — Refer to the appropriate spectrum analyzer manual for operating instructions.

Maintenance — Consists of diode replacement and keeping the parts clean and free of scratches. Reinstall the dust cover on the flange and the shorting cap on the connector when the mixer is not in use.



## REPLACEABLE PARTS LIST

Fig. & Index No.	Tektronix Part No.	Serial/Model No.		Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
		Eff	Dscont					
1-	016-0657-00			1		WG MIXER SET:HI PERFORMANCE	80009	016-0657-00
-1	016-0634-01			1		. WG MIXER ASSY:40 TO 63GHZ	80009	016-0634-01
-2	200-2141-00			1		. . COVER, WG MIXER:40-63 GHZ	11956	030-302
-3	211-0288-00			4		. . SCREW CAP:4-40 X 0.3 INCH, STL	23365	0BD
-4	015-1020-00			1		. . TERM, COAXIAL: SHORT CIRCUIT, SMA	16179	217SF
-5	016-0631-01			1		. WG MIXER ASSY:18 TO 26.5GHZ	80009	016-0631-01
-6	200-2169-00			1		. . COVER, WG MIXER:18-26.5 GHZ	11956	020-102
-7	213-0856-00			1		. . SCREW, EXT RLV:0.093-80 X 0.109 INCH, HEX HD	80009	213-0856-00
-8	155-0212-00			1		. . MICROCKT, LINEAR: WAVE GUIDE DIODE MOUNT	80009	155-0212-00
-9	015-1020-00			1		. . TERM, COAXIAL: SHORT CIRCUIT, SMA	16179	217SF
-10	016-0632-01			1		. WG MIXER ASSY:26.5 TO 40GHZ	80009	016-0632-01
-11	200-2170-00			1		. . COVER, WG MIXER:26.5-40 GHZ	11956	020-101
-12	213-0856-00			1		. . SCREW, EXT RLV:0.093-80 X 0.109 INCH, HEX HD	80009	213-0856-00
-13	155-0212-00			1		. . MICROCKT, LINEAR: WAVE GUIDE DIODE MOUNT	80009	155-0212-00
-14	015-1020-00			1		. . TERM, COAXIAL: SHORT CIRCUIT, SMA	16179	217SF
-15	012-0649-00			1		. CABLE ASSY, RF:50 OHM COAX, 28.5 INCH LONG	80009	012-0649-00
-16	004-1651-00			1		. CASE STORAGE:12.5 X 4.68 X 2.75, WOOD	80009	004-1651-00
	016-0662-00			1		WG MIXER SET:HI PERFORMANCE, 18-40GHZ	80009	016-0662-00
	016-0631-01			1		. WG MIXER ASSY:18 TO 26.5GHZ	80009	016-0631-01
	200-2169-00			1		. . COVER, WG MIXER:18-26.5 GHZ	11956	020-102
	213-0856-00			1		. . SCREW, EXT RLV:0.983-80 X 0.109 INCH, HEX HD	80009	213-0856-00
	155-0212-00			1		. . MICROCKT, LINEAR: WAVE GUIDE DIODE MOUNT	80009	155-0212-00
	015-1020-00			1		. . TERM, COAXIAL: SHORT CIRCUIT, SMA	16179	217SF
	016-0632-01			1		. WG MIXER ASSY:26.5 TO 40GHZ	80009	016-0632-01
	200-2170-00			1		. . COVER, WG MIXER:26.5-40 GHZ	11956	020-101
	213-0856-00			1		. . SCREW, EXT RLV:0.093-80 X 0.109 INCH, HEX HD	80009	213-0856-00
	155-0212-00			1		. . MICROCKT, LINEAR: WAVE GUIDE DIODE MOUNT	80009	155-0212-00
	015-1020-00			1		. . TERM, COAXIAL: SHORT CIRCUIT, SMA	16179	217SF
-17	012-0649-00			1		. CABLE ASSY, RF:50 OHM COAX, 28.5 INCH LONG	80009	012-0649-00
	004-1651-00			1		. CASE STORAGE:12.5 X 4.68 X 2.75, WOOD	80009	004-1651-00
STANDARD ACCESSORY								
	062-4566-00			1		DATA SHEET:015-0631-01,016-0632-01,016-0634-01	80009	062-4566-00

## CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
11956	TECHNICAL PLASTICS CORPORATION	50 WALTON STREET	ATTLEBORO, MA 02703
16179	OMNI SPECTRA, INC.	24600 HALLWOOD CT.	FARMINGTON, MI 48024
23365	ALFA INDUSTRIES	20 SYLVAN RD.	WOBURN, MA 01801
80009	TEKTRONIX, INC.	P O BOX 500	BEAVERTON, OR 97077